



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/685,136	10/14/2003	Joseph B. Rowlands	BP3247	4505
51472 7590 01/06/2010 GARLICK HARRISON & MARKISON P.O. BOX 160727 AUSTIN, TX 78716-0727				
EXAMINER				
NGUYEN, TANH Q				
ART UNIT		PAPER NUMBER		
2182				
NOTIFICATION DATE		DELIVERY MODE		
01/06/2010		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

MMURDOCK@TEXASPATENTS.COM
JIVY@TEXASPATENTS.COM
SMCWHINNIE@TEXASPATENTS.COM

Office Action Summary

Application No.

10/685,136

Applicant(s)

ROWLANDS, JOSEPH B.

Examiner

TANH Q. NGUYEN

Art Unit

2182

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 October 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,6,7,10,12,15 and 16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,6,7,10,12,15 and 16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claims 1, 10 are objected to because of the following informalities:

"cacheable data having global coherency" in line 8 of claim 1 should be replaced with --first cacheable data having global coherency-- for clarity (see lines 11-12 of claim 1 below)

"a second memory that is local to the second node, and also having global coherency" in lines 11-12 of claim 1 should be replaced with --a second memory that is local to the second node, the second memory storing second cacheable data also having global coherency-- for consistency and clarity with "cacheable data having global coherency" in line 8 of claim 1

"the second bridge identifies the first memory to be located in a remote node" in lines 16-17 of claim 1 should be replaced with --the second bridge identifies the first memory as located in a remote node-- for clarity

"cacheable data having global coherency" in line 5 of claim 10 should be replaced with --first cacheable data having global coherency-- for clarity (see lines 13-14 of claim 10 below)

"a second memory that is local to the second node, and also having global coherency" in lines 13-14 of claim 10 should be replaced with --a second memory that is local to the second node, the second memory storing second cacheable data also having global coherency-- for consistency and clarity with "cacheable data having global coherency" in line 5 of claim 10

"identifying in the second node that the first memory that is to be accessed is located in a remote node" in lines 18-19 of claim 10 should be replaced with --identifying in the second node that the first memory is located in a remote node-- for clarity

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1, 3, 6-7, 10, 12, 15-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites "the second bridge identifies the first memory to be located in a remote node" in lines 16-17. The recitation suggests the possibility of "a remote node" that is different than the first node. The specification appears to support the first node being a remote node.

Claim 7 recites "a home node" in line 2. The recitation suggests the possibility of "a home node" that is different than the first node. The specification appears to support the first node being a home node.

Claim 10 recites "identifying in the second node that the first memory that is to be accessed is located in a remote node" in lines 18-19. The recitation suggests the possibility of "a remote node" that is different than the first node. The specification appears to support the first node being a remote node.

Claim 16 recites "a home node" in line 2. The recitation suggests the possibility

of "a home node" that is different than the first node. The specification appears to support the first node being a home node.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1, 3, 6-7, 10, 12, 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keller et al. (US 6,167,492) in view of Bailey et al. (US 6,205,508).

6. As per claim 1, Keller teaches a system (10, FIG. 1) for managing coherent data access through multiple nodes (12A-12D, FIG. 1), comprising:

a first data processing system forming a first node (e.g. 12B – FIG. 1), in which

the first data processing system includes a first processor (col. 4, lines 54-55), a first bridge (col. 4, line 57-58), a first interface (e.g. 18E, FIG. 1) and a first memory (14B – FIG. 1) that is local to the first node, wherein the first node supports packet traffic for transfer of packets (col. 4, lines 13-25), coherent traffic to access ~~local and remote~~ the first memory (col. 4, lines 13-18; col. 2, lines 15-17; col. 4, line 67-col. 5, line 10) and non-coherent traffic to communicate with input/output (I/O) circuitry (col. 3, lines 62-66; col. 4, lines 18-25), in which the first memory stores cacheable data having global coherency (col. 5, lines 4-10); and

a second data processing system forming a second node (e.g. 12D – FIG. 1) that also supports packet traffic (col. 4, lines 13-25), coherent traffic (col. 4, lines 13-18; col. 2, lines 15-17; col. 4, line 67-col. 5, line 10) and non-coherent traffic (col. 3, lines 62-66; col. 4, lines 18-25), in which the second data processing system includes a second processor (col. 4, lines 54-55), a second bridge (col. 4, line 57-58), and a second interface (18K – FIG. 1) and a second memory (14D, FIG. 1) that is local to the second node, and also having global coherency (col. 5, lines 4-10), the first and second interfaces coupling the first node to the second node (24C, 24D - FIG. 1) for transfer of packet traffic, and coherent traffic, and non-coherent traffic between the first and second nodes (col. 4, lines 13-25), wherein when the second node receives a packet from an external source that is to access a coherent fabric of the first memory (col. 13, lines 62-64; col. 14, lines 22-25; col. 5, lines 4-10), the second bridge identifies the first node as memory as located in the first node (a remote node of the second node) and converts the packet to an uncacheable data access request to the first node (col. 4, line 67-col. 5,

line 4; col. 10, lines 50-51; col. 11, line 27-30) so that the ~~uncacheable data access request access to the first memory~~ does not access a coherent fabric of the second memory in the second node (col. 4, line 67-col. 5, line 4), and when the first bridge receives the uncacheable data access request, the first bridge identifies the uncacheable data access request as a local access request to the first memory in the first node and processes the uncacheable data access request from the second node as a coherent data access request in the first node to access the coherent fabric of the first memory in the first node (col. 10, line 47-col. 13, line 58).

Keller does not teach transfer of non-coherent traffic between the first node and the second node. Bailey teaches transmitting of fixed and non-vectored interrupt packets as non-coherent interrupt packets (col. 5, lines 36-37; col. 18, line 62-col. 19, line 26) to more efficiently utilize the link between the first and second nodes (col. 19, lines 45-47). It would have been obvious to one of ordinary skill in the art to allow the system of Keller to transfer fixed and non-vectored interrupt packets as non-coherent interrupt packets – in order to more efficiently utilize the link between the first and second nodes. Keller/Bailey therefore suggests non-coherent traffic between the first node and the second node.

7. As per claims 3, 6-7, Keller teaches the uncacheable data access request associated with the packet from the external source being a store or a write request to access the first memory (col. 11, line 27-30);

the second node generating the uncacheable data access request for the first node to write data to the memory in the first node, and the first node consuming the

uncacheable data access request (see rejection of claims 1 and 3 above) - hence the uncacheable data access request following a producer-consumer protocol;

data written by the first bridge in accordance with the request generated by second bridge comprising a payload and a flag being written to a memory location of a home node (i.e. the first node) (FIG. 4; col. 7, lines 38-61).

8. As per claims 10, 12, 15-16, the claims generally correspond to claims 1, 3, 6, 7, and are rejected on the same bases.

Examiner's note: *Examiner has cited particular page, column and line number(s) in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. Applicant needs to consider the references in their entirety as potentially teaching all or part of the claimed invention.*

In the case of amending the claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and verification of the metes and bounds of the claimed invention.

Terminal Disclaimer

9. The terminal disclaimer filed on October 7, 2009 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US Patent 7,424,561 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Response to Arguments

10. Applicant's arguments with respect to the pending claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Keller et al. (US 6,714,994) shows elements within a processing node in FIG. 2.

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TANH Q. NGUYEN whose telephone number is (571)272-4154. The examiner can normally be reached on M-F (9:30AM-6:00PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, TARIQ HAFIZ can be reached on (571)272-6729. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TANH Q. NGUYEN/
Primary Examiner, Art Unit 2182